

A COLLECTION OF ORCHIDS FROM LAOS.

By A. F. G. KERR.

The small collection of orchids enumerated below was made during March and April, 1932, in the provinces of Wiengchan and Chiengkwan in French Laos. These two provinces are now usually called Vientiane and Tran-ninh, respectively. The writer had no modern map while on this tour, so used the names Wiengchan and Chiengkwan, still in current use by local people, for his labels, and has adhered to them here. In giving localities the name of the province in which they are situated is always cited first. The route taken is indicated in a map published elsewhere in this Journal.

Several collectors interested in orchids had previously visited this region, among them Micholitz, Spire, Roebelin, Smiles, and Poilane. That it is still far from well known may be judged from the fact that the present collection, of forty species only, contains seven that are considered to be previously undescribed. They are:—

*Liparis brunneolobata**Dendrobium multilineatum**Coelogyne calcicola**Pleione laotica**Sigmatogyne bia**Sarcanthus Smithianus**Nervilia calcicola*

One new variety is described:

Ione scariosa, King et Pantling, var. *magnibracteata*.

It has also been found necessary to give one old species a new name:

Dendrobium Denneanum (*D. clavatum* of various authors, not of Roxburgh).

In addition to undescribed species, a number not previously recorded from Laos are represented in the collection.

The region in which the collection was made lies north of the Me Kong, where it takes its last big easterly bend before turning

south to flow through the lowlands of Laos and Cambodia to the sea. This region has a diversified surface, varying from the flat country bordering the Me Kong, barely 200 metres above sea-level, to the mountains lying north, several of which rise to a height of over 2,500 metres. The highest of these, Pu Bia (2,800 metres), was visited. The geological features are also varied; limestone, shale, and sandstone being the common formations. This diversity of the physical features largely accounts for the richness of the region in animal and vegetable life. This topic is touched on by Colonel Fraser in a previous paper in this Journal.*

The species collected probably do not represent more than a tenth of the orchids that are to be found in the area. As the visit was made towards the end of the dry season, terrestrial orchids are very poorly represented; for example, there is not a single *Habenaria*. It will be noted that many common epiphytic genera are also absent.

Since work on the collection was started, two parts of the *Flore Générale de L'Indo-Chine* (F. I. C.) dealing with orchids have been published, containing all the Epidendreae and the Vandae up to *Dipodium*. This work has been quoted for such species of the present collection as occur in these two parts. In addition, references are given to the place of original publication, to the Flora of British India (F. B. I.), and to other literature when thought necessary.

The figures have been drawn from macerated flowers, with the parts spread out flat, so do not represent the natural appearance of the living flowers.

The writer is indebted to the courtesy of the Director of the Royal Botanic Gardens, Kew, for the privilege of working out this collection in the Kew Herbarium.

1. *Microstylis polyodon*, *Hk. f.* in F. B. I., v, p. 688 (1890); *Ic. Pl.*, t. 2002. *Microstylis Rheedii*, Reichb. f. in Trans. Linn. Soc., xxx, p. 138, et Parish *Icon.*, t. 215 (*ined.*), *non* Wight.

Wiengchan, Nam Yuak, c. 400 m., in bamboo forest, in flower April 25th, 0986.

Distr. Moulmein (*type!*), Siam.

* F. C. Fraser: Dragonflies from the Laos Country. *Journ. Siam Soc., Nat. Hist. Suppl.*, Vol. IX, No. 1, 1933, p. 109.

2. *Liparis brunneolobata*, Kerr, sp. nov.; affinis *L. bituberculata* Lindl., sed labello lobis lateralibus magnis et lobo intermedio bifido valde distincta.

Herba terrestris ad 32 cm. alta. *Caules* approximati, cylindrici, graciles, ad 10 cm. longi; pars inferior vaginis obtecta, demum subnuda; pars superior 2-3 foliata. *Folia* glabra, late ovata, acute acuminata, basi rotundata, in petiolum 1.5-2 cm. longe contracta, nervis maioribus 7, ad 12 cm. longa, 7 cm. lata. *Inflorescentia* erecta, glabra, subaxe multiflora, 18-25 cm. longa, pedunculo costato ad 10 cm. longo, rachide ad 15 cm. longa. *Bracteae* patentes, triangulae, acutae, c. 1 mm. longae. *Sepala* patentes; sepalum dorsale lineari-lanceolatum, obtusum, 3-nervium, 9 mm. longum, 1.5 mm.

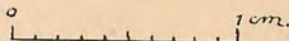


Fig. 1. *Liparis brunneolobata*.

latum; sepala lateralia late falcata, obtusa, 4-nervia, 6 mm. longa, 2.5 mm. lata. *Petala* anguste linearia, 1-nervia, 9 mm. longa, 0.75 mm. lata. *Labellum* sub-rhomboideum, trilobatum, genuflexo-curvatum, 5.5 mm. longum, 5 mm. latum; lobi laterales rotundati, marginibus incrassatis, 1.5 mm. longi; lobus intermedius bifidus, lobulis falcatis divaricatis; discus basi callo bicornuato in 3-costulas breves excurrente ornatus. *Gynostemium* apice arcuatum, auriculis parvis triangulis, basi dilatatum, 5 mm. longum. *Ovarium* pedicellatum gracile, 10 mm. longum.

Wiengchan, Pak Munung, c. 1,000 m., in evergreen forest, flowering April 23rd, 0983.

The sepals and petals are pinkish-green, the side lobes of the lip dark brown.

Though the nearest affinity of this plant appears to be *L. bituberculata*, Lindl., it is not very closely allied to that or any other described species. The lip, with its dark brown, thickened side lobes, is a striking feature.

3. *Dendrobium chrysanthum*, Wall. ex Lindl. in Gen. & Sp. Orch. Pl., p. 80 (1830); F. B. I., v, p. 747; F. I. C., vi, p. 212.

Chiengkwan, Muang Cha, on tree in evergreen forest by stream, c. 1,100 m., in bloom April 10th, 0968; Pu Muten, c. 1,700 m., in bloom April 19th, s. n.

Distr. Nepal (type!), Sikkim! Assam! Yunnan! Tonkin.

4. *Dendrobium chrysotoxum*, Lindl. in Bot. Reg., sub t. 19 et t. 36 (1847); F. B. I., v, p. 750; F. I. C., vi, p. 218.

Chiengkwan, Tatom, on small trees on rocky limestone hill, c. 300 m., in flower April 3rd, 0957.

Distr. Burma, Assam! Yunnan! N. Siam! (Type! a cultivated plant, said to be from India).

5. *Dendrobium crepidatum*, Lindl. in Paxt. Fl. Gard., i, p. 63, fig. 45 (1850-51); F. B. I., v, p. 740; F. I. C., vi, p. 213.

Wiengchan, Borikhane, on trees in deciduous forest, in flower March 26th, 0952.

Distr. Bombay! Malabar! Dehra Dun! Sikkim! Assam! U. Burma! N. Siam! (Type a cultivated specimen said to have come from India).

6. *Dendrobium crystallinum*, Reichb. f. in Gard. Chron., 1868, p. 572; F. B. I., v, p. 739; F. I. C., vi, p. 203.

Chiengkwan, Tawiang, on tree in deciduous forest, c. 400 m., in bloom April 6th, s. n.; Muang Awm, on small tree in savannah, c. 900 m., 0962.

Distr. U. Burma! Arracan, Tenasserim, N. Siam! Annam, Cambodia. (Type a cultivated specimen from Burma).

7. *Dendrobium Denneanum*, Kerr, nom. nov. *Dendrobium clavatum*, Lindl. in Paxt. Fl. Gard., ii, 104, t. 189 (1851-52), Hk. f. in F. B. I., v, p. 746, Gagnep. in F. I. C., vi, p. 203, non Roxb. in Fl. Ind., edit. 2, iii, p. 481 (1832).

Chiengkwang, Muang Cha, on tree in light evergreen forest, c. 1,100 m., in flower April 9th, 0965.

Distr. Kumaon! Nepal! Sikkim! Assam (*type!*) Yunnan!

There seems to be no doubt that Roxburgh's *D. clavatum* is the same as *D. densiflorum*, Lindl. ex Wall. [Wall., Pl. As. Rar., i, p. 34, t. 40 (1830)]. In fact, in the Wallichian herbarium the sheet numbered 2004, carrying pieces of a *Dendrobium* which is evidently *D. densiflorum*, is labelled, in Wallich's handwriting,¹ *Dendrobium clavatum*, Roxb. In the sheets of the Wallichian distribution in Lindley's herbarium, the numbers 2004 and 2000 have been transposed, as compared with sheets so numbered in the actual Wallichian herbarium, and this, no doubt, misled Lindley. Lindley, in his description of *D. clavatum*, quotes Wallich 2004, which is inapplicable, if the sheet in the Wallichian Herbarium is taken to be, as it must be, correctly numbered; but his description is applicable to the sheet so numbered in his own herbarium.

As, therefore, *D. clavatum* was already a synonym (of *D. densiflorum*) when Lindley described his plant, another name must be found for the latter. I propose the name *D. Denneanum*, in honour of Thomas Denne, the importer of the plant on which Lindley largely based his description. The type of this species is Denne's plant in Lindley's herbarium.

8. *Dendrobium Loddigesii*, Rolfe in Gard. Chron., 1887, ii, p. 155; F. B. I., vi, p. 187; F. I. C., vi, p. 222. *D. pulchellum*, Lodd. Bot. Cab., t. 1935 (1833), non Roxb.

Chiengkwang, Muang Cha, near base of small tree in scrub, c. 1,100 m., in flower April 11th, 0970.

Distr. Yunnan! Lungchow! Canton! Hainan! (*Type* a cultivated specimen of unknown origin).

¹ I am indebted to Mr. Skan of the Kew Herbarium for giving his opinion on this writing.

Only one small plant, with two flowers, was found. The species does not seem to have been recorded so far south before.

9. *Dendrobium multilineatum*, Kerr, sp. nov.; a *D. Evrardii*, Gagnep. foliis latioribus, floribus maioribus, labello multicostato, inter alia, differt.

Herba epiphytica. *Caules* teretes, tenues, sulcati, ad c. 35 cm. longi, 4 mm. crassi, internodiis ad 4 cm. longis. *Vaginae* tubulosae, dense nigro-hirsutae, ad 4.5 cm. longae. *Folia* oblongo-ovata, basi rotundata, apice inaequaliter bilobula, supra basi parce nigro-hirsuta, subtus satis dense nigro-hirsuta, ad 7 cm. longa, 1.7 cm. lata. *Inflorescentia* terminalis vel subterminalis, 1-2 flora, basi bracteata. *Bracteae* ovatae, acutae, prominente 3-5-nerviae, nigro-hirsutae. *Flores* patentes, albi, labello basi rubro-brunneo. *Pedicellus* cum ovario triquetrus, 2.5-3.5 cm. longus. *Mentum* fere rectum, longe conicum, 2 cm. longum. *Sepala* non-carinata; sepalum dorsale oblongo-lanceolatum, acuminatum, acutum, 9 nervium, 3 cm. longum, 1 cm. latum; sepalum lateralibus similia, sed ad pedem gynostemii decurrentia, 3.4 cm. longa,

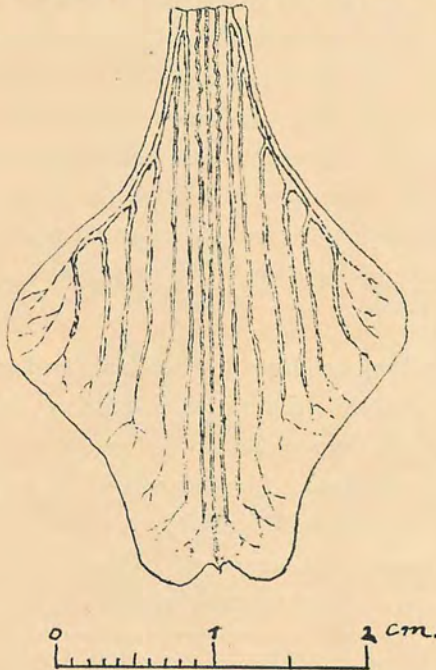


Fig. 2. Lip of *Dendrobium multilineatum*,

1.1 cm. lata. *Petala* late ovata, obtusa, apiculata, 13-nervia, 3 cm. longa, 2.1 cm. lata. *Labellum* e basi cuneata dilatatum, 3-lobatum, expansum 3.7 cm. longum, 2.7 cm. latum; lobi laterales rotundati, margine integri, 1.2 cm. lati; lobus intermedius emarginatus, apiculo interposito; discus lineis elevatis 5, minute tomentosus, a basi orientibus, dimidio superiore 15 divisus flabelliforme extensusque, ornatus. *Gynostemium* c. 8 mm. longum, 3 mm. latum; stelidia satis magna, rotundata; anthera minute papillosa, late mitriformis, antice margine albido-pilosula.

Pu Bia, on trees in evergreen forest, c. 1,900 m., in flower April 12th, 0972.

This plant was fairly abundant on Pu Bia. The flowers are white, with reddish-brown markings on the lip. I have not seen a specimen of *D. Evrardii*, Gagnep., from Annam, which is said to have no raised lines on the lip. Our plant is also related to *D. infundibulum*, Lindl., which has the margin of the mid-lobe serrulate.

10. *Dendrobium nobile*, Lindl. in Gen. & Sp. Orch. Pl., p. 79 (1830); F. B. I., v, p. 740; F. I. C., vi, p. 205.

Chiengkwang, Muang Cha, on tree by stream, c. 1,100 m., in bloom April 19th, s. n.; in light evergreen, c. 1,100 m., in bloom April 9th, 0966.

Distr. E. Himalaya! Khasia! China! (*type*).

Micholitz also collected this beautiful species in the same province, about 1909. His specimen in Hb. Kew is labelled "Tran-ninh, Laos".

11. *Dendrobium pendulum*, Roxb. in Fl. Ind., ed. 2, iii, p. 484 (1832); F. B. I., v, p. 741; F. I. C., vi, p. 257. *D. crassinode*, Bens. et Reichb. f. in Gard. Chron., 1869, p. 164; Bot. Mag., t. 5766.

Chiengkwang, Muang Cha, on trees in light evergreen forest, c. 1,100 m., blooming April 9th, 0964.

Distr. Chittagong (*type*), Arakan, Siam (?).

12. *Dendrobium senile*, Par. ex Reichb. f. in Gard. Chron., 1865, p. 434; F. B. I., v, p. 751; F. I. C., vi, p. 223.

Chiengkwang, Tatom, on trees in open scrub, c. 200 m., in flower April 4th, 0960.

Distr. Moulmein (*type*!), N. Siam!

This is a considerable extension eastwards of the known range of *D. senile*. It should be noted that the hairs on herbarium specimens tend to turn brown after being kept for some time. They are grey when fresh.

13. *Cirrhopetalum retusiusculum*, Hook. f. in F. B. I., v, p. 776 (1890); *Bolbophyllum (Cirrhopetalum) retusiusculum*, Reichb. f. in Gard. Chron., 1869, p. 1182.

Chiengkwang, Pu Muten, on trees in evergreen, 1,300–1,700 m., in flower April 19–20, 0980, s. n.; Pu Hua Sua, c. 1,300 m., s. n.

Distr. Moulmein! (*type*), Yunnan!

These plants are referred with some hesitation to *C. retusiusculum*. The three species, *C. Wallichii*, Lindl., *C. retusiusculum*, Hook. f. and *C. Micholitzii*, Rolfe, are all very closely allied and possibly forms of one species. *C. touranense*, Gagnep., of which no specimen has been seen, also belongs to this group. Our plants agree with *C. retusiusculum* in size of flower, but have markedly acute lateral sepals. The length of the distal free portion of the lateral sepals varies in the three plants collected. The markings on the dorsal sepal and petals take the form of lines, not spots.

14. *Eria chrysobracteata*, Schlechter in Orchis, vi, p. 7, t. i, B. figs. 8–15 (1912); F. I. C., vi, p. 352.

Pu Bia, on trees in evergreen forest, c. 1,900 m., in flower April 12th, 0974; Wiengchan, Pak Munung, on tree in light evergreen forest, c. 1,400 m., in flower April 23rd, s. n.

Distr. N. Siam! (*type*).

15. *Eria paniculata*, Lindl., in Wall. Pl. As. Rar., i, p. 32, t. 36 (1829?); F. B. I., v, p. 789; F. I. C., vi, p. 349.

Chiengkwang, Muang Cha, on trees in evergreen forest, c. 1,100 m., in flower April 10th, 0967.

Distr. Pundua (*type*!), Darjeeling! Sikkim! Assam! Burma! Cambodia, Annam (ex F. I. C.).

Our plant has narrower bracts and longer pedicels than the type. When further material is available it may be necessary to separate it as a distinct species.

16. *Trichotosia dasyphylla*, Kränzl. in Pflanzenr., iv, 50, ii. B. 21, ii, p. 138 (1911). *Eria dasyphylla*, Par. et Reichb. f. in Trans. Linn. Soc., xxx, p. 147; F. B. L., v, p. 808.

Chiengkwang, Pu Hua Sua, on tree in evergreen forest, c. 1,200 m., in flower April 21st, 0981.

Distr. E Himalaya! Burma! (*type*), N. Siam!

17. *Cerastostylis siamensis*, Rolfe ex Downie in Kew Bull., 1925, p. 379.

Chiengkwang, Pu Muten, on trees in evergreen forest, 1,500–1,700 m., in bud April 19–20th, 01012, s.n.

Distr. N. Siam (*type*!).

18. *Coelogyne calcicola*, Kerr, sp. nov.; *C. Sanderae*, Kränzl. maxime affinis sed labello duobus, haud tribus, carinis fimbriatis ornato distinguenda.

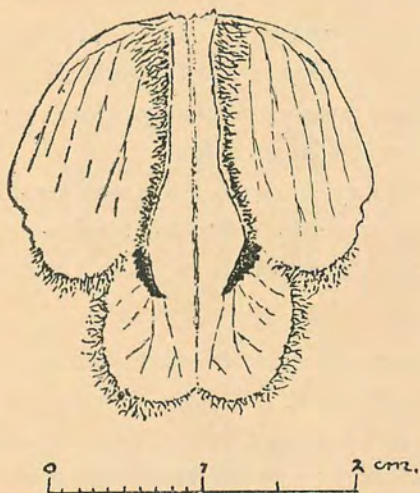


Fig. 3. Lip of *Coelogyne calcicola*.

Herba epiphytica vel epilithica. *Rhizoma* repens, squamosum, 5–9 mm. crassum. *Pseudobulbi* anguste ovati, angulati, in rhizomate 3–4 cm. distantes, basi squamis ovatis pallido-brunneis vestiti, diphylli, 5–8 cm. longi. *Folia* oblongo-lanceolata vel oblongo-obovata, subacuta, nervo medio subtus valde prominente, pagina subtus minute verrucosa, in petiolum 3.8–6 cm. longum angustata, 13–20 cm. longa, 4–5.5 cm. lata. *Inflorescentia* apice pseudobulbi maturi oriens, erecta,

rigida, usque 6-flora, 14-20 cm. longa; pedunculus 7-15 cm. longus, basi nudus, flores infra 6-7 glumis compressis dense imbricatis vestitus. *Bractee* ovaria pedicellata superantes, caducae, ovatae, acutae, ad 3.3 cm. longae, 1.6 cm. latae. *Pedicellus* cum ovario 1.2-1.8 cm. longus. *Flores* patentes. *Sepala* oblongo-lanceolata, subacuta, 7-9-nervia; sepalum dorsale 2.8 cm. longum, 1.4 cm. latum; sepala lateralia 2.7 cm. longa, 0.9 cm. lata. *Petala* linearia, obtusa, 3-nervia, 2.6 cm. longa, 3.5 mm. lata. *Labellum* trilobum, 2.7 cm. longum, 2.5 cm. latum explicatum; lobi laterales dimidium labelli superantes, rotundati, antice marginibus fimbriatis; lobus intermedius subquadrangulus, apice emarginatus, marginibus longe fimbriatis, 1.3 cm. longus, 1.4 cm. latus; carinae 2 a basi labelli medium lobi intermedii attingentes, fimbriatae, sed apicem versus in lamellas carunculatas dilatatae. *Gynostemium* 1.7 cm. longum, leviter curvatum, apicem versus alatum.

Chiengkwang, Muang Cha, on trees and rocks on rocky limestone hill, c. 1,500 m., in flower April 16th, 0978.

The sepals and petals are creamy white, the lip white with yellow patch on disc and brown ridges.

There are two specimens in Hb. Kew referable to this species: *Forrest* 18715, Yunnan, and a cultivated specimen from the Botanic Gardens, Glasnevin, "probably from Siam or Annam, as it is of French origin."

19. *Coelogyne flaccida*, *Lindl.* in Gen. & Sp. Orch. Pl., p. 39 (1830); F. B. I., v, p. 829; F. I. C., vi, p. 309 (*in clave*).

Chiengkwang, Muang Cha, on tree in evergreen forest by stream, c. 1,100 m., in flower April 10th, 0969,

Distr. Nepaul! (*type*), Sikkim!

20. *Coelogyne ochracea*, *Lindl.* in Bot. Reg., xxxii, t. 69 (1846); F. B. I., v, p. 831.

Pu Bia, abundant on trees in evergreen forest, 2300-2600 m., in flower April 13th, 0976.

Distr. Nepaul! Sikkim! Bhotan! U. Burma! S. Shan States! (*Type* from a cultivated plant of unknown origin).

There is a good deal of variation in the plants referred to this

species. Our plant has a relatively broader mid-lobe than most of the examples seen.

21. *Pleione laotica*, Kerr, sp. nov.; *P. pogonoidei*, Rolfe probabiliter maxime affinis sed forma labelli, disco fimbriato, valde distincta.

Herba epiphytica, alta c. 15 cm. immatura. *Pseudobulbi* graciles, ampullacei, apice annulo cylindraceo margine dentato coronati, basi vaginis tubulosis demum in fibras solutis obtecti, monophylli, 3.5–4.5 cm. longi, 0.8 cm. crassi. *Folium* juvenile lanceolatum, acutum, tempore floris c. 7 cm. longum, 2 cm. latum.

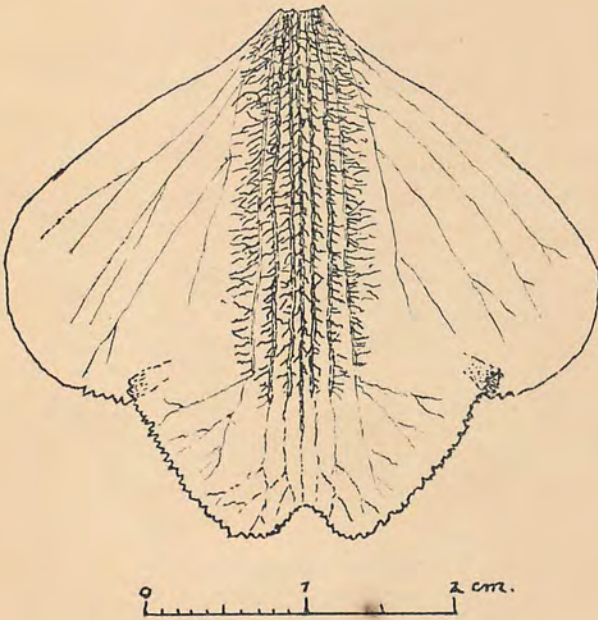


Fig. 4. Lip of *Pleione laotica*.

Inflorescentia supra folium c. 4.5 cm. longa, uniflora. *Bractea* oblongo-ovata, 2.3 cm. longa, 0.8 cm. lata. *Flos* patens, c. 4 cm. longus. *Sepala* lanceolata, subacuta, 5-nervia, 4 cm. longa, 1 cm. lata. *Petala* similia. *Labellum* late obovatum, basi late cuneatum, trilobum, 3.5 cm. longum, 4 cm. latum explicatum; lobi laterales rotundati, antice margine minute dentato; lobus intermedius late rotundatus, apice emarginatus, margine irregulariter minute dentato; discus nervis mediis 7, longe fimbriatis fere medium lobi intermedii attengentibus, ornatus.

Gynostemium apicem versus late alatum, ala truncata, 2.5 cm. longum.

Pu Bia, on mossy trees in evergreen forest, 2,500–2,700 m., in flower April 13th, 0977.

The group of species to which this plant belongs is chiefly Chinese. It was previously collected on Pu Sai Lai Leng, another mountain in Laos, by Smiles on March 29th and April 1st, 1893. Smiles' specimens are in Hb. Kew.

22. *Sigmatogyne bia*, Kerr, sp. nov.; a *S. Pantlingii*, Pfitz., floribus multo maioribus, labello latiore, inter alia, differt.

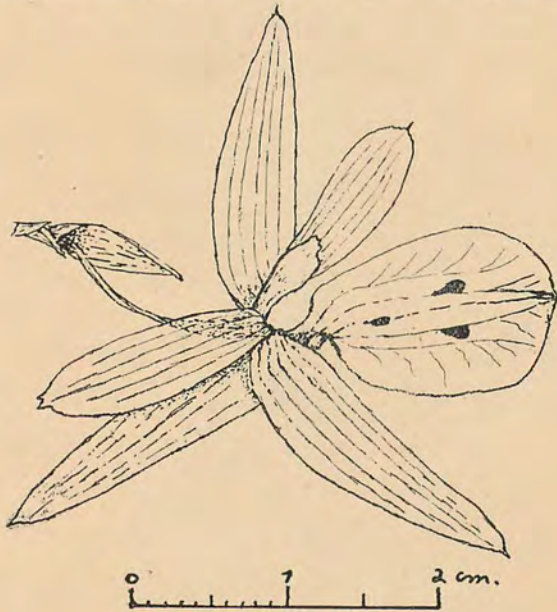


Fig. 5. *Sigmatogyne bia*.

Herba epiphytica. *Pseudobulbi* anguste ovati, juniores vaginis membranaceis obtecti, in rhizomate repente satis congesti, monophylli, c. 2 cm. longi, 7 mm. crassi. *Folium* oblongo-lanceolatum, acutum, in petiolum 2 cm. longum angustatum, 9–12 cm. longum, 2 cm. latum. *Scapus* uniflorus, 1 cm. longus, basi vaginis imbricatis vestitus. *Bractea* ovata, membranacea, 7 mm. longa, 3 mm. lata. *Pedicellus* cum ovario 1.5 cm. longus. *Sepalum* dorsale ovato-lanceolatum, acutum, apiculatum, 2 cm. longum, 0.5 cm. latum. *Sepala* lateralía ovato-lanceolata, acuta, apiculata, basi saccata, 5-nervia, 2 cm. longa, 0.6 cm. lata.

Petala oblongo-obovata, obtusa, apiculata, 5-nervia, 1.7 cm. longa, 0.45 cm. lata. *Labellum* integrum, late obovatum, antice rotundatum apiculatum, disco callis parvis 3 ornato, 1.8 cm. longum, 1.2 cm. latum. *Gynostemium* apice alatum, basi in pedum crassum curvatum productum, 0.6 cm. longa.

Pu Bia, on trees in evergreen forest, c. 1,500 m., in flower April 12th, 0971.

The flowers are yellowish white, with brown calli on the lip. Only two flowers were found. In the only two pieces available the pseudobulbs are monophyllous. Pfitzer describes the pseudobulbs of *Sigmatogyne Pantlingii* as diphyllous, but in two examples so named in Hb. Kew they are monophyllous.

23. ***Panisea uniflora***, Lindl. in Fol. Orchid., Panisea, p. 2 (1854); Pflanzenr., iv, 50, ii, B. 7, p. 139; F. I. C., vi, p. 322. *Coelogyne uniflora*, Lindl. in Gen. & Sp. Orch. Pl., p. 42 (1830); F. B. I., v, p. 842.

Wiangchan, Nam Yuak, pendant from branch of tree overhanging stream, c. 500 m., in flower April 25th, 0985.

Distr. Nilghiris! Nepaul (*type!*), Sikkin! Assam! Burma! N. Siam!

24. ***Otochilus porrecta***, Lindl. in Gen. & Sp. Orch. Pl., p. 36 (1830); F. B. I., v, p. 844.

Pu Bia, on trees in evergreen forest, 2,000–2,200 m., in flower April 12–13th, 0973, 0975.

Distr. Pundua (*type!*), E. Himalaya! Assam! Burma! Yunnan!

25. ***Ione scariosa***, King et Pantling, var. *magnibracteata*, Kerr, var. nov.; a typo bracteis multo maioribus et floribus duplo maioribus differt.

Chiengkwan, Muang Cha, on tree on rocky limestone hill, c. 1,500 m., in flower April 16th, 0979.

This differs from the type in the points noted above. There is, however, some variation in the size of the flowers and bracts in plants referred to *I. scariosa*. In our plant they are larger than in any others seen. *I. siamensis* has large flowers, but is distinguished

by the tip of the dorsal sepal extending beyond the bract and being recurved.

26. **Eulophia Burkei**, Rolfe ex Downie in Kew Bull., 1925, p. 380; F. I. C., vi, p. 404. *E. nuda*, Hook. f. in F. B. I., vi, p. 5, *pro parte*, non Lindl.

Chiengkwang, Muang Awn, in savannah, c. 900 m., in flower April 7th, 0961.

Distr. Burma! N. Siam (*type!*), Yunnan!

27. **Cymbidium lancifolium**, Hook. in Exot. Fl., t. 51 (1824); Gen. & Sp. Orch. Pl., p. 164; F. B. I., vi, p. 9; F. I. C., vi, p. 413.

Chiengkwang, Pu Muten, in evergreen forest, c. 1,500 m., in bud April 20th, 01013.

Distr. Nepaul! to Japan! Perak! Java! Borneo! Presumably figured by Hooker from a cultivated specimen, no particulars are given.

28. **Geodorum attenuatum**, Griff. in Calc. Journ. Nat. Hist., v., no. xix, p. 358, t. 24 (1844). *G. candidum*, Wall. ex Lindl. in Fol. Orchid., Geodorum, p. 3, syn. *Limodorum candidum*, Roxb. et var. (B) excl. (1854); F. B. I., vi, p. 17.

Wiengchan, Muang Baw, in light evergreen forest, c. 200 m., in flower April 28th, 0989.

Distr. Burma! (*type*).

This is probably not Roxburgh's *Limodorum candidum*. Our plant differs from Griffith's figure in having larger bracts at the top of the peduncle. In this it agrees with another figure, unpublished, of another plant from Burma.

29. **Luisia siamensis**, Rolfe ex Downie in Kew Bull., 1925, p. 384.

Wiengchan, Borikhane, on tree in scrubby evergreen forest, c. 200 m., in flower March 27th, 0953.

Distr. N. Siam (*type!*).

This species comes very near *L. teretifolia*, Gaudich.

29. **Camarotis pallida**, Lindl. in Journ. Linn. Soc., iii (Bot.), p. 37 (1858). *Micromeria pallida*, Lindl. in Bot. Reg., sub. t. 1522

(1832). *Aerides pallidum*, Roxb. in Fl. Ind., ed. 2, iii, p. 475 (1832).
Sarcochilus Roxburghii, Hook. f. in F. B. L., vi, p. 36.

Wiengchan, Muang Baw, on tree in open ground, c. 200 m., in flower April 27th, 0987.

Distr. Bengal! Chittagong! (*type*), Mergui! N. Siam!

In the Lindley Herbarium there is only one sheet written up as *Camarotis pallida*, this sheet has the Wallich No. 7321. It holds one plant with flowers, a detached inflorescence, and some loose flowers in an envelope. There is also a sketch of a flower on the sheet. This sketch agrees well with the flowers of our plant, but it is doubtful if the few flowers attached to the plant are the same. They are, however, in bad condition. See the notes under *Sarcochilus Roxburghii* in F. B. L.

30. **Renanthera coccinea**, Lour. in Fl. Cochinchin., ii, p. 521 (1790); F. B. L., vi, p. 48.

Chiengkwan, Tatom, on tree in open scrub, c. 200 m., in flower April 1st, 0954.

Distr. Tavoy! Annam! (*type*), Hainan! China!

31. **Saccolabium micranthum**, Lindl. in Gen. & Sp. Orch. Pl., p. 220 (1830); F. B. L., vi, p. 59.

Chiengkwan, Tatom, on small tree on rocky limestone hill, c. 300 m., in flower April 3rd, 0958.

Distr. Dehra Dun! E. Himalayas (*type*!), Assam, Burma! N. Siam!

32. **Sarcanthus Smithianus**, Kerr, sp. nov.; a *S. Parishii*, Hook. f. inflorescentia brevior, labello lobo intermedio subquadrato, inter alia, differt.

Herba epiphytica. *Caulis* brevis, c. 2-3 cm. longus, 0.5-0.7 cm. crassus. *Folia* lorata, apice inaequaliter obtuse biloba, 4-13 cm. longa, 1-2 cm. lata. *Inflorescentia* decurva, racemus simplex vel breviter ramosus, 3-6 cm. longa; pedunculus 1-2 cm. longus, 2-3 vaginis brevibus donatus; rachis 2-4 cm. longa, floribus 5-12. *Bracteae* breves, late triangulae, 1 mm. longae. *Flores* c. 9 mm. longi, sepalo dorsale erecto, sepalis lateralibus petalisque reflexis. *Sepalum dorsale* ovatum, concavum, obtusum, 5-nerviis, 5 mm. longum, 2 mm.

latum. *Sepala lateralia* ovata, leviter falcata, obtusa, 5-nervia, 5 mm. longa, 3 mm. lata. *Petala* lineari-oblonga, obtusa, 3-nervia, 3.5 mm. longa, 1.5 mm. lata. *Labellum* 3-lobum; lobi laterales breves, truncati; lobus intermedius sub-quadratus, crassus, c. 2.5 mm. longus; calcar sepalis brevior, curvatum, apice leviter inflatum, bilobum, c. 2.5 mm. longum; intus callo postico bilobo velutino, callo antico crasso, apice septo incompleto donatum. *Gynostemium* c. 2.5 mm. longum; anthera magna, galeata, antice rostrata; pollinia parva, globosa, caudiculo gracile, curvato, c. 4 mm. longo.

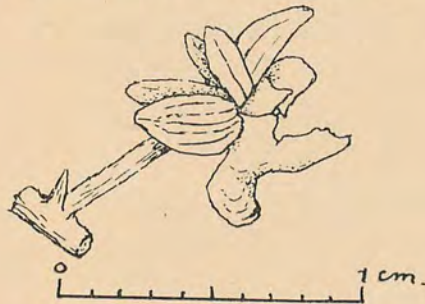


Fig. 6. *Sarcanthus Smithianus*.

Chiengkwang, Tatom, on small tree on rocky limestone hill, c. 200 m., in flower April 3rd, 1956.

The writer has much pleasure in naming this plant after Dr. Hugh McCormick Smith, who, besides his well-known work on the fauna of Siam, has taken an active interest in its flora.

In addition to the affinity mentioned above, there are some other species which come near our plant. As these species have not been seen, descriptions have had to be relied on for differentiating them. Among these *S. angkorensis* Guillaum., is probably most nearly allied, but has longer racemes, and a spur twice as long. There are two imperfectly known plants of this affinity described by Reichenbach. f.; namely, *S. asperus* and *S. mirabilis*. The descriptions given for these are both very meagre. It is stated that *S. asperus* has a long, slender peduncle, while *S. mirabilis* has acute side-lobes to the lip; neither of which characters is present in our plant. It may be remarked that there are several species of *Cleisostoma* bearing a close resemblance to this section of *Sarcanthus*. The presence of a septum in the spur, the chief distinguishing feature

between the two genera, is not always readily determinable in herbarium material, particularly when that septum is small and incomplete.

33. *Cleisostoma siamense*, Rolfe ex Downie in Kew Bull., 1925, p. 406.

Wiengchan, Muang Baw, on tree in open scrub, c. 200 m., in flower April 27th, 0988.

Distr. N. Siam (*type!*)

34. *Cleisostoma Wendlandorum*, Reichb. f. in Otto & Dietr. Allgemein. Gartenz., 1856, p. 219; Hook. f. in F. B. I., vi, p. 74. *Pomatocalpa Wendlandorum*, J. J. Smith in Nat. Tijds. Ned. Ind., lxxii, p. 108 (1912).

Chiengkwan, Tatom, on trees in evergreen on limestone hill, c. 300 m., in flower April 3rd, 0959.

Distr. Cachar! Andamans! Tenasserim! Java (*type*).

Our plant has smaller leaves than most of the collections referred to this species.

35. *Galeola integra*, Rolfe ex Downie in Kew Bull., 1925, p. 409.

Wiengchan, Putat, in evergreen forest, c. 1,200 m., blooming April 21st, 0982.

Distr. N. Siam (*type!*).

The dentate margin of the clinandrium is a good character for this species. It is not mentioned in the original description.

36. *Galeola pusilla*, Hook. f. in F. B. I., vi, p. 89 (1891); Schlechter, Engl. Bot. Jahrb., xlv, p. 387.

Chiengkwan, in evergreen forest, c. 1,500 m., in flower April 20th, 01024.

Distr. Pegu (*type*).

Apparently there is only one previous record of this species; the type collection of Kurz from Pegu, 'Pooke Ridges', which is represented in Hb. Kew by a drawing. Our plant, of which only a single specimen was obtained, agrees with the description and drawing, except that it has the reflexed tip of the lip larger.

37. **Goodyera procera**, Hook. in Exot. Flor., t. 39 (1823); F. B. I., vi, p. 111 (1891). *Neottia procera*, Wall. ex Ker in Bot. Reg., t. 639 (1822).

Chiengkwang, Tawieng, on rock in stream, c. 400 m., in flower April 6th, 01022.

Distr. India! to China! and Formosa! Java! Originally described from a cultivated specimen of unknown origin.

38. **Nervilia Aragoana**, Gaudichaud in Freycin., Voy. Bot., p. 422, t. 35 (1826); Schlecht., Engl. Bot. Jahrb., xlv, p. 404. *Pogonia flabelliformis*, Lindl. in Gen. & Sp. Orch. Pl., p. 415 (1840); F. B. I., vi, p. 121. *Aplostellis flabelliformis*, Ridl. in F. M. P., iv, p. 203.

Chiengkwang, Muang Cha, in lalang, c. 1,000 m., in flower April 9th, 0963.

Distr. India! to Philippines! Samoa! Marianne Islands (*type*).

The type of Lindley's *P. flabelliformis*, according to the drawing on his sheet of Wallich 7400, has a relatively larger mid-lobe than that figured by Gaudichaud, or than that in our plant. It is possible that *P. carinata* Lindl. (*Epipactis carinata*, Roxb.) is not distinct.

39. **Nervilia calcicola**, Kerr, sp. nov.; *N. punctatae*, Schlechter, maxime affinis, sed labelli lobo intermedio maiore, apice rotundato, facile distinguenda.

Herba terrestrials, c. 7-14 cm. alta. *Tuber* subglobosum, c. 1 cm. crassum. *Folia* non visa. *Caulis* floridus gracilis, 7-14 cm. longus, basi vaginis 2 membranaceis acutis, parte superiore vagino maiore, c. 2.5 cm. longo, donatus. *Inflorescentia* 1-flora. *Bractea* ovata, acuta, membranacea, 2.5 mm. longa, 0.75 mm. lata. *Flos* subpatens, 15 mm. longus. *Pedicellus* cum ovario 5 mm. longus. *Sepala* lineari-lanceolata, acuta, 3-nervia, 15 mm. longa, 2.25 mm. lata. *Petala* similia, sed parviores, 14 mm. longa, 2 mm. lata. *Labellum* panduriforme, 3-lobatum, glabrum, 14 mm. longum, ad lobos laterales 3 mm. latum; lobi laterales parvi, deltoidei, acuti, 1.5 mm. longi; lobus intermedius ovatus, apice rotundatus, margine integrus, 9 mm. longus,

5 mm. latus. *Gynostemium* 6 mm. longum.

Chiengkwang, Tatom, among limestone rocks, c. 300 m., in flower April 3rd, 01023.

The sepals and petals are pinkish green, the lip white with purple markings.

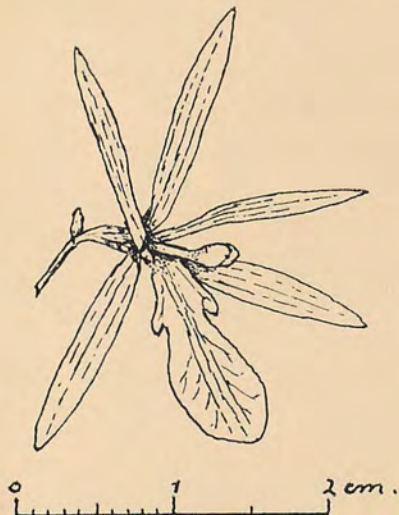


Fig. 7. *Nervilia calcicola*.

It is probable that this species has been confused with *N. punctata*, Schlecht. The specimens from Langkawi in Hb. Kew (*Robinson*, s. n. and *Curtis*, 2809) are our species.

40. ***Epipogum roseum***. *Lindl.* in Journ. Linn. Soc., i, p. 177 (1857); *Limodorum roseum*, Don in Prodr. Fl. Nepal (Feb. 1825). *Galera nutans*, Blume in Bijdr., p. 416, t. 3 (July 1825). *Epipogum nutans*, Reichb. f. in Bonpl., v, p. 36 (1857); *Lindl.*, Journ. Linn. Soc., i, p. 177 (1857); F. B. I., vi, p. 124.

Wiengchan, Pak Munung, in evergreen forest, c. 600 m., flowering April 24th, 0984.

Distr. India! (*type*, Nepaul), Ceylon! N. Siam! Sumatra! Java! Philippines! Australia! W. Tropical Africa!

